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(54) **SAFETY LOCK FOR ZIPPER BAGS**

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A44B 19/30	(2006.01)
B65D 33/25	(2006.01)
A44B 19/26	(2006.01)

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CPC ***A44B 19/303*** (2013.01); ***B65D 33/2591*** (2013.01); *A44B 19/24* (2013.01); *A44B 19/26* (2013.01); *Y10T 24/2561* (2015.01); *Y10T 24/45241* (2015.01); *Y10T 24/45529* (2015.01)

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CPC A44B 19/32; A44B 19/30; A44B 19/26; A44B 19/303; Y10T 24/45; Y10T 24/45241; Y10T 24/45215; Y10T 24/45471; Y10T 24/45476; Y10T 24/58; Y10T 24/158; Y10T 24/45529; Y10T 70/5053; Y10T 24/2507; Y10T 24/45482; B65D 33/2591

USPC 24/415, 418, 436, 604; 190/119, 120

See application file for complete search history.

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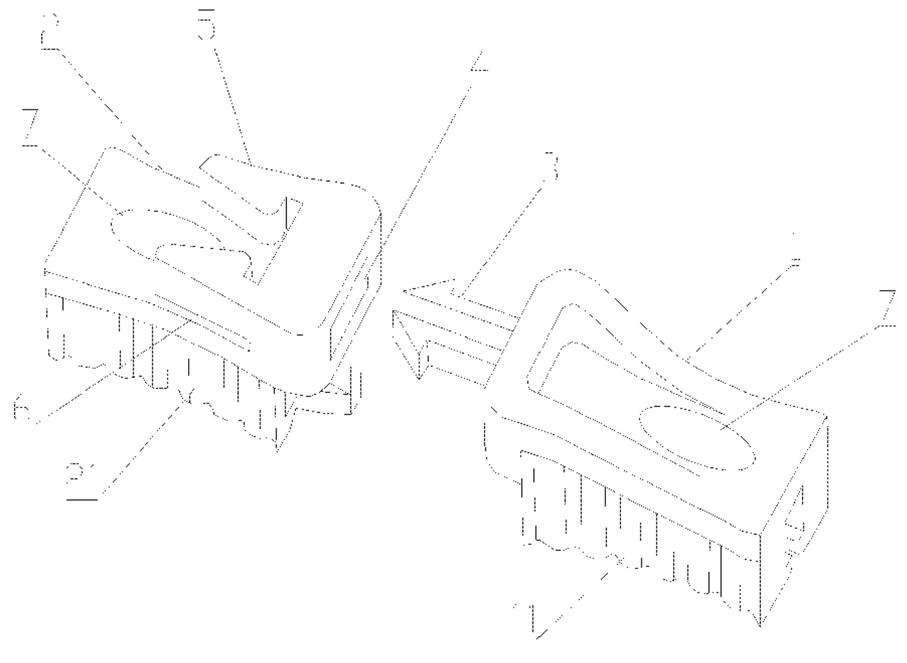
(57) **ABSTRACT**

The invention provides a safety lock for zipper bags, comprising a first pull block with a locking bar and a second pull block with a locking frame. Said locking bar is inserted into the locking frame to link the first pull block with said second pull block; said second pull block is further equipped with a release unit for detaching the locking bar from the locking frame. A slot is formed between said release unit and top surface of the second pull block. In the invention, the locking bar and the locking frame can connect and lock the two pull blocks which can be unlocked by pressing the pressing portions with certain force. Children are unable to open the zipper bag easily. Therefore, the invention can prevent children from mistakenly opening the zipper bag effectively and avoids loss of important documents and accidental ingestion of medicines.

8 Claims, 5 Drawing Sheets



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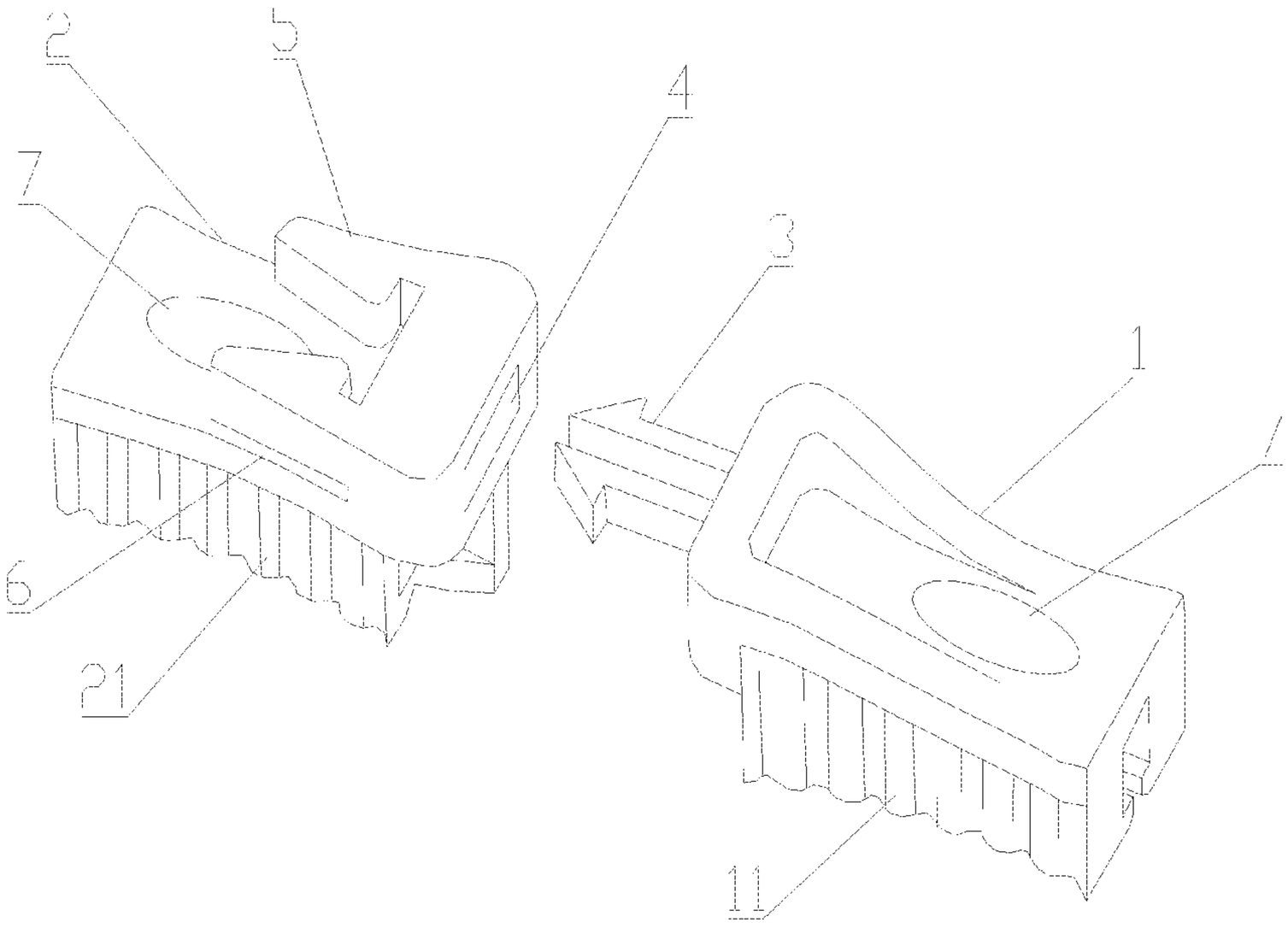

Fig. 1

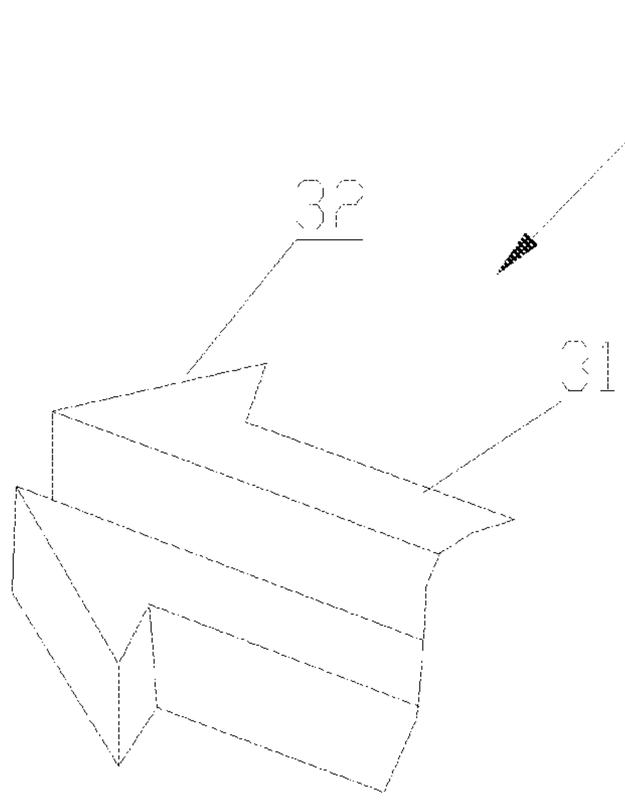

Fig. 2

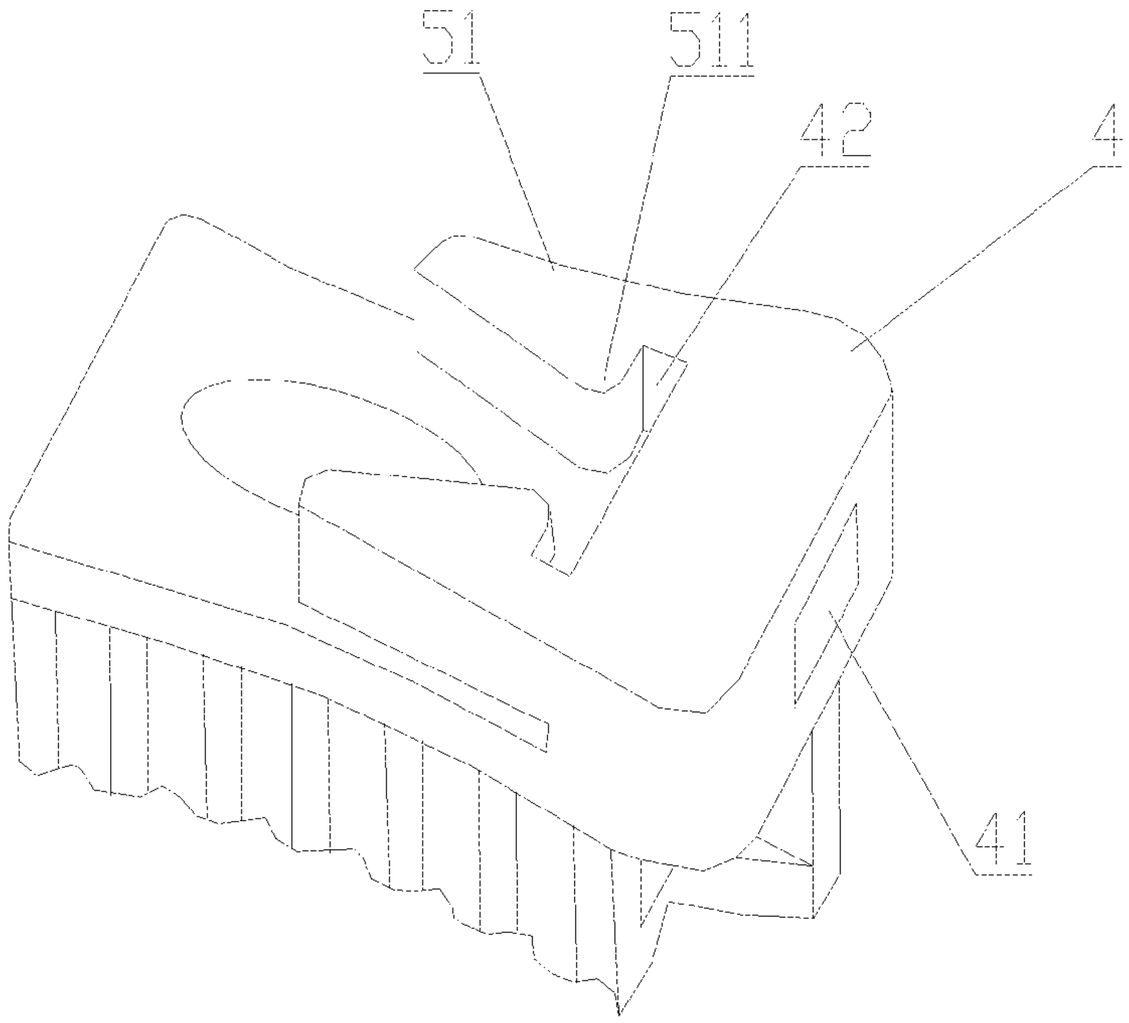

Fig. 3

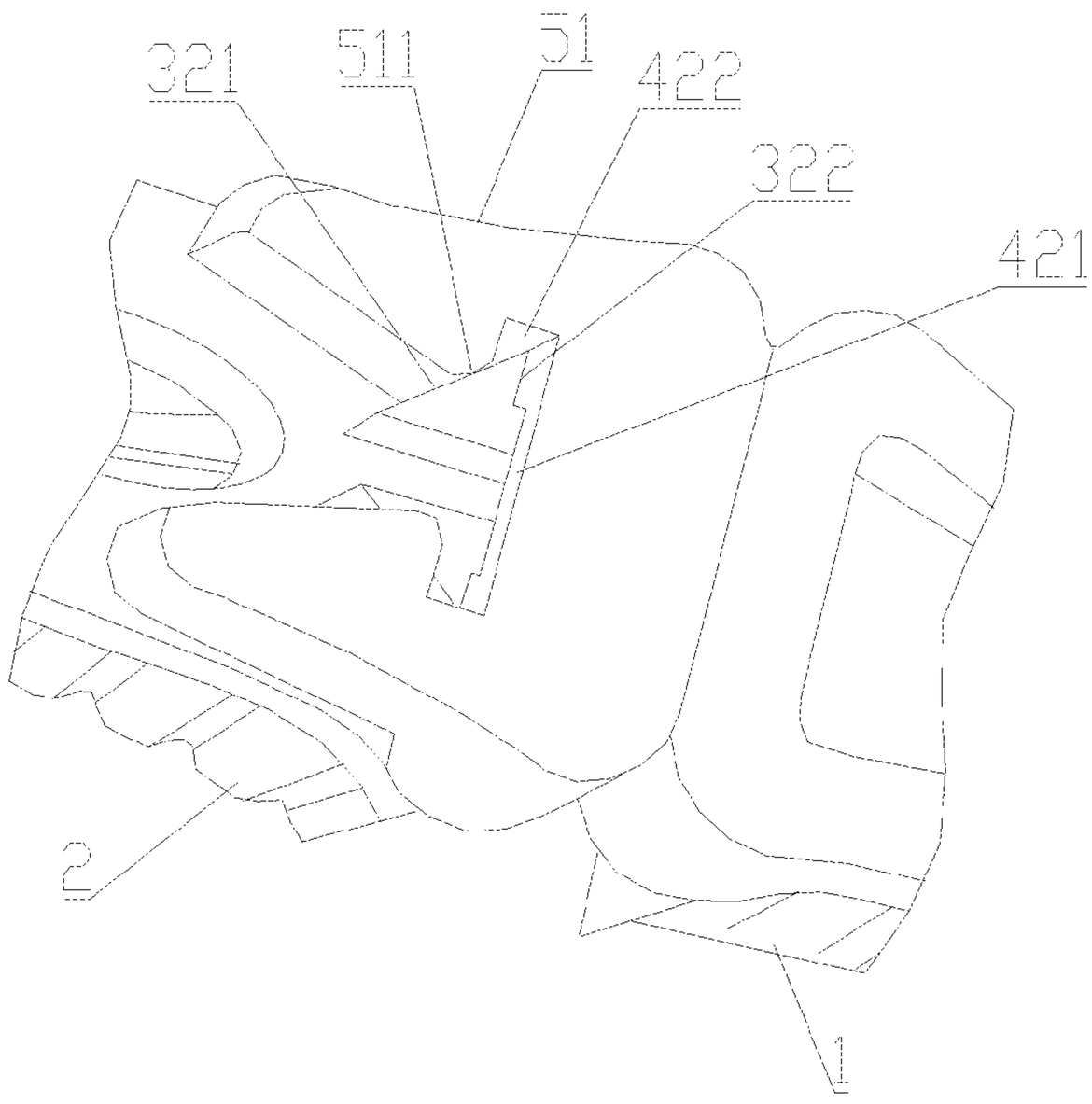

Fig. 4

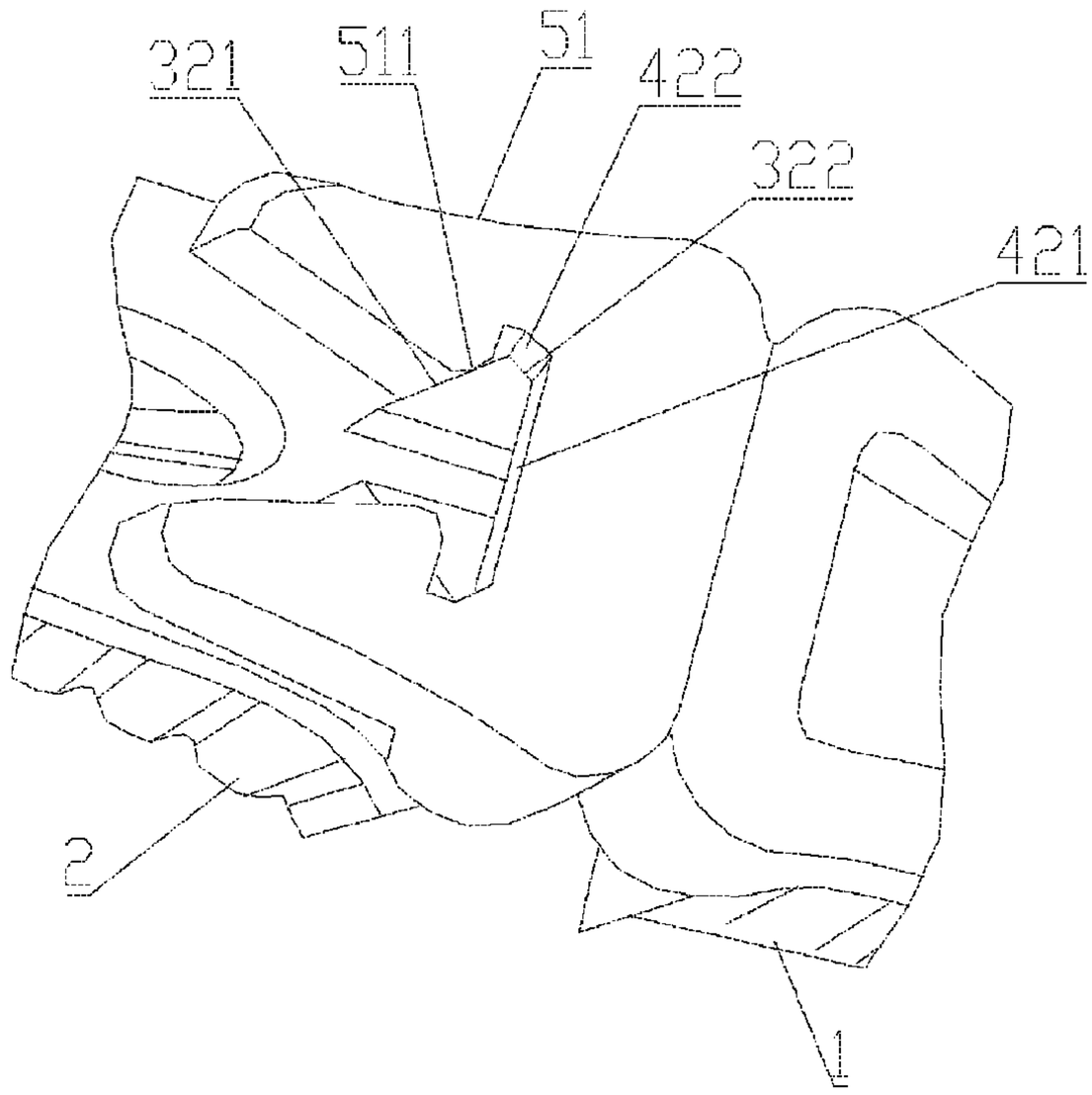

Fig. 5

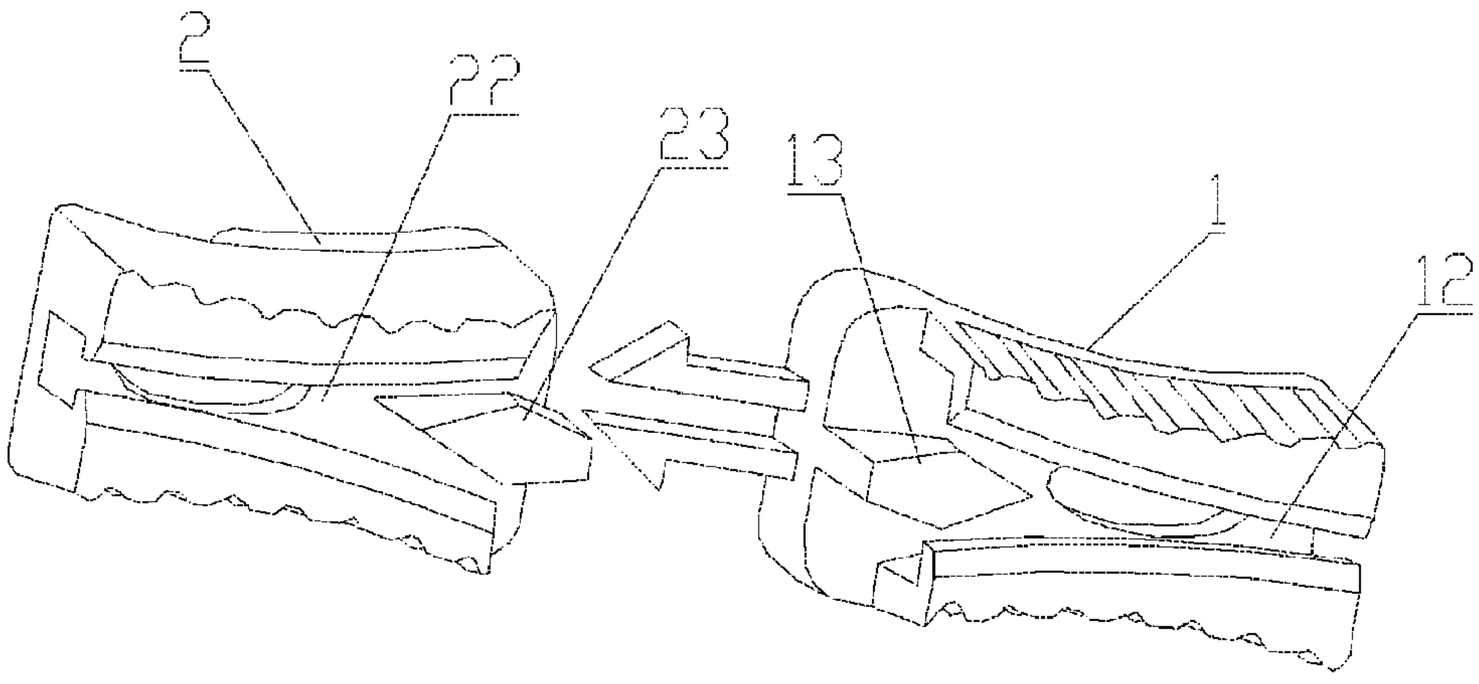

Fig. 6

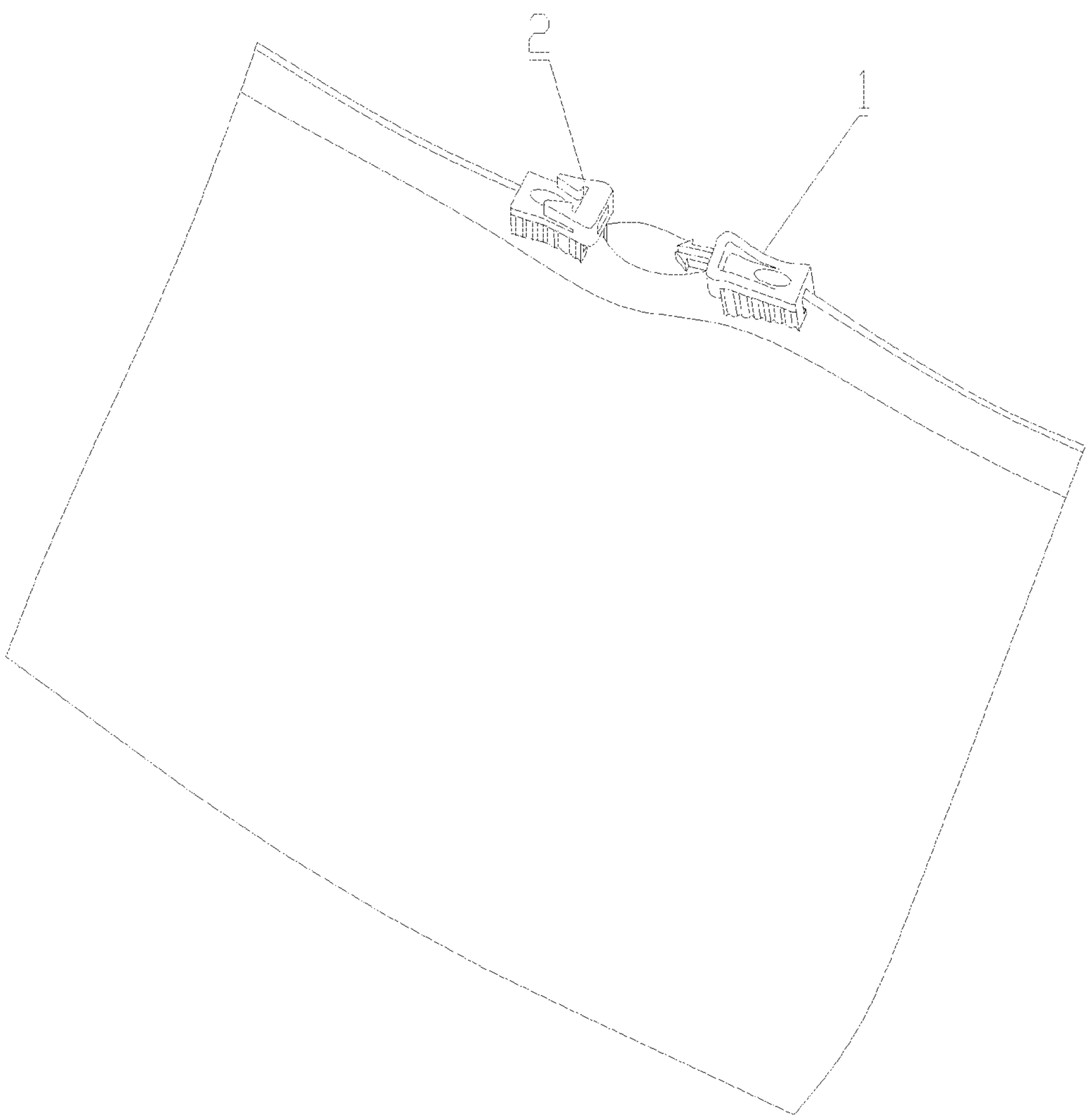

Fig. 7

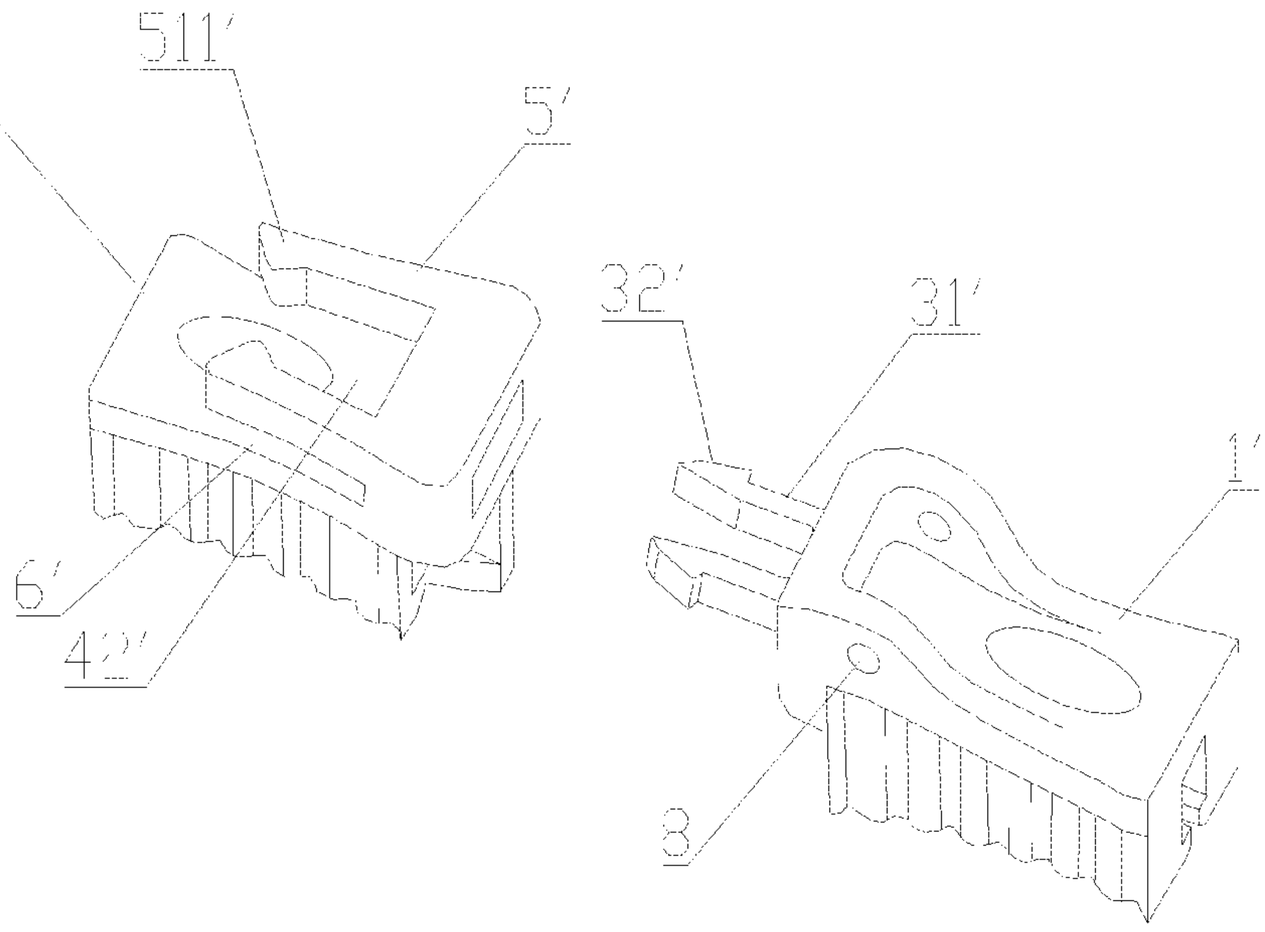

Fig. 8

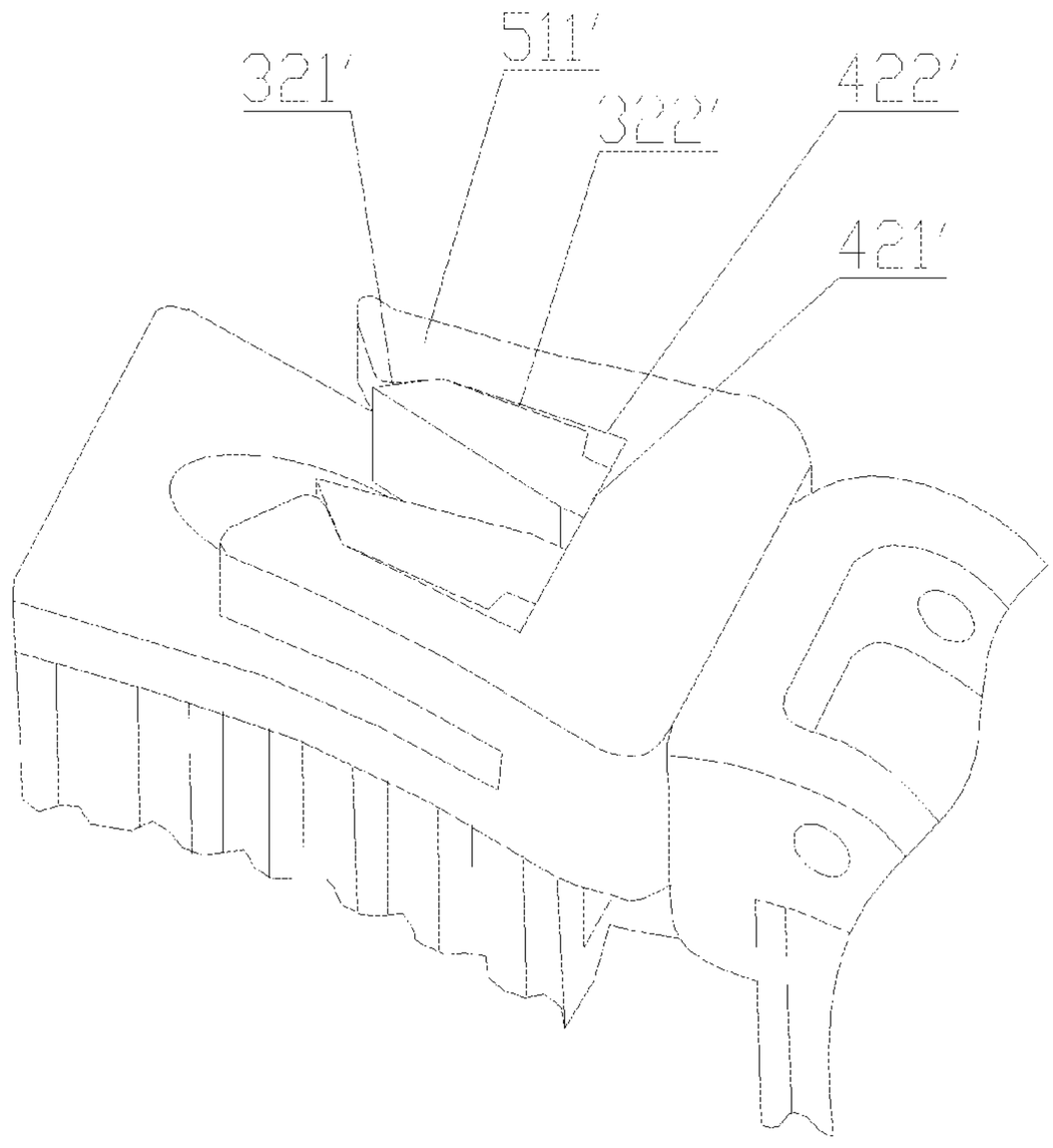

Fig. 9

SAFETY LOCK FOR ZIPPER BAGS

CROSS-REFERENCE TO RELATED APPLICATIONS

This present invention claims the benefit of Chinese Patent Application No. CN201410523997.9, filed on Sep. 30, 2014, the contents of which are hereby incorporated by reference.

FIELD OF THE INVENTION

The invention relates to a lock for zipper bags, particularly relates to a safety lock for zipper bags.

BACKGROUND

Zipper bags are common tools for storing items in daily life, especially for storing various documents or medicines, which possess a very good waterproof seal effect. But due to the lack of locking apparatus on the zipper of ordinary zipper bags in general, children can easily open the zipper bag, resulting in problems, such as loss of important documents or accidental ingestion of medicines, and poor safety.

SUMMARY

The invention provides a safety lock for zipper bags, which is used for locking zipper bags, preventing children from mistakenly opening and solving the said problems in the prior art.

The technical solution of the invention is as follows:

A safety lock for zipper bags comprises a first pull block with a locking bar and a second pull block with a locking frame, wherein said locking bar is inserted into said locking frame to link the first pull block with the second pull block; said second pull block is further equipped with a release unit for detaching the locking bar from the locking frame, a slot is formed between said release unit and the top surface of the second pull block.

As a further improvement of the invention, said locking bar is arranged at one end of said first pull block and extends out of said first pull block; said locking bar includes a connecting arm and a clamp at the tail end of the connecting arm.

As a further improvement of the invention, said locking frame includes an opening in which the clamp can be inserted in and a cavity communicated with said opening for containing the clamp.

As a further improvement of the invention, said release unit includes pressing portions on two sides of the locking frame and said pressing portions are provided with pressing heads.

As a further improvement of the invention, said cavity comprises a first inner wall and a second inner wall that forms an angle of 90°~135° with the first inner wall, said clamp includes a first side and a second side connected with the first side; said second side can cling to the second inner wall closely, and said first side can contact with the pressing heads of the pressing portions.

As a further improvement of the invention, said cavity comprises a third inner wall and a forth inner wall that forms an angle less than 90° with the third inner wall, said clamp extends outward relative to the connecting arm, said clamp includes a third side and a forth side that forms an obtuse angle with the third side, said third side can contact with the pressing heads of the pressing portions.

As the further improvement of the invention, a safety hole is respectively formed on the top of said first pull block and said second pull block.

As the further improvement of the invention, a safety hole is respectively formed on the top of said first pull block and said second pull block, a tamper hole is further formed on two sides of said first pull block respectively.

As the further improvement of the invention, a zipper slot is provided on bottom of said first pull block and said second pull block respectively, and an opening block for opening the zipper bag seal is arranged at one end of said zipper slot.

As a further improvement of the invention, there are multiple ridges on the side hand-held parts of said first pull block and said second pull block respectively.

The beneficial effects of the invention are as follows:

The locking bar and the locking frame can connect and lock the two pull blocks which can be unlocked by pressing the pressing portions with certain force. Children cannot open the zipper bag when they do not know how to open or not have enough force to press the pressing portions. Therefore, the invention prevents children from mistakenly opening the zipper bag effectively and avoids loss of important documents and accidental ingestion of medicines.

BRIEF DESCRIPTION OF THE DRAWINGS

In order to illustrate the technical solutions of the embodiments of the invention more clearly, the accompanying drawings used in the embodiments are briefly introduced herein. Obviously, the accompanying drawings in the following introduction are only some embodiments of the invention, ordinary technicians in the art can obtain the other drawings based on the following accompanying drawings without any creative work.

FIG. **1** is the structural schematic view of the first embodiment of the invention;

FIG. **2** is the partial enlarged view of the locking bar in the first embodiment of the invention;

FIG. **3** is the structural schematic view of the second pull block in the first embodiment of the invention;

FIG. **4** is the partial connection schematic view of the first pull block and the second pull block when the first inner wall and the second inner wall form an angle of 90° in the first embodiment of the invention;

FIG. **5** is the partial connection schematic view of the first pull block and the second pull block when the first inner wall and the second inner wall form an angle of 135° in the first embodiment of the invention;

FIG. **6** is the schematic view of the bottom structure of the first embodiment of the invention;

FIG. **7** is the using status reference view of the first embodiment of the invention;

FIG. **8** is the structural schematic view of the second embodiment of the invention;

FIG. **9** is the partial connection schematic view of the first pull block and the second pull block in the second embodiment of the invention.

DETAILED DESCRIPTION

Based on the drawings, the technical solutions in the embodiments of the invention are described clearly and completely herein. Obviously, the described embodiments are only a part of the embodiments rather than all embodiments.

Embodiment 1

As shown in FIG. **1** to FIG. **3**, in the embodiment, the safety lock for zipper bags comprises a first pull block **1** and a second pull block **2**. One end of the first pull block is provided

with a locking bar **3** extending out of the first pull block. The locking bar **3** includes a connecting arm **31** and a clamp **32** at the tail end of the connecting arm **31**.

One end of the second pull block is provided with a locking frame **4** matched with the locking bar **3**. The locking frame **4** includes an opening **41** in which the clamp **32** is inserted and a cavity **42** for containing the clamp **32** and communicating with the opening **41**.

The locking bar **3** can be inserted into the locking frame **4** to link the first pull block **1** with the second pull block **2**. The second pull block **2** is further equipped with a release unit **5** for detaching the locking bar **3** from the locking frame, and a slot **6** is formed between the release unit **5** and the top surface of the second pull block **2**.

There are multiple ridges **11** and **21** on the side hand-held parts of the first pull block and the second pull block respectively to increase the friction force during holding. An oval safety hole is formed on the top of the first pull block **1** and the second pull block **2** respectively. The safety hole **7**, on the one hand, plays air-feeding and water-feeding effects: the safety hole **7** can keep the air-feeding and water-feeding effects when children swallow the pull block into esophagus or trachea, thus avoiding more serious consequences. On the other hand, it has a tamper-evident function: the safety hole **7** can pass through the once-knotted rope; the other end of the rope is fixed in the zipper bag; the rope knot will be destroyed when the zipper bag is opened, thus whether the zipper bag is opened can be judged.

The release unit **5** includes two pressing portions **51** connected with the locking frame cavity **42**. The two pressing portions **51** are arranged on two sides of the cavity **42** symmetrically and the pressing portions **51** are further provided with pressing heads **511**.

As shown in FIG. **4** and FIG. **5**, the cavity **42** comprises a first inner wall **421** and a second inner wall **422** that forms an angle of 90°~135° with the first inner wall **421**, wherein FIG. **4** is the schematic view when the first inner wall **421** and the second inner wall **422** form an angle of 90°~135°; FIG. **5** is the schematic view when the first inner wall **421** and the second inner wall **422** form an angle of 135°.

The clamp **32** comprises a first side **321** and second side **322** connected with the first side **321**, wherein the angle between the first side **321** and the second side **322** is set so that the second side **322** clings to the second inner wall **422** closely and the first side **321** contacts with the pressing head **511** of the pressing portion **51**.

As shown in FIG. **6**, a first splayed zipper slot **12** is arranged at the bottom of the first pull block **1**, one end of the first zipper slot **12** is provided with a first opening block **13** for opening the zipper bag seal; a second splayed zipper slot **22** is arranged at the bottom of the second pull block **2**, one end of the second zipper slot **22** is provided with a second opening block **23** for opening the zipper bag seal.

The connecting arm **31** is elastic and can be bent and distorted when being stressed. When pushing the locking bar **3** towards the opening **41** of the locking frame **4**, the clamp **32** is squeezed by the opening **41** so that the elongated connecting arm **31** is bent inwards and distorted. In addition, the clamp **32** is inserted into the cavity **42** of the locking frame **4**; the connecting arm **31** rebounds after the clamp **32** is inserted into the cavity and the clamp **32** is stuck in the cavity **42** to lock the first pull block **1** and the second pull block **2** together.

When it is necessary to detach the first pull block **1** from the second pull block **2**, pressing the pressing portions **51** with fingers, the pressing heads **511** squeeze the first side **321** of the clamp **32**, which makes the connecting arm **31** bend and distort inwards and squeeze the clamp **32** out of the cavity to detach the first pull block **1** from the second pull block **2**.

FIG. **7** is the using status reference view of the invention. With this figure, the working principle an application fields of the invention can be easily understood.

The locking bar **3** and the locking frame **4** can connect and lock the two pull blocks **1**, **2** which can be unlocked by pressing the pressing portions **51** with a certain strength, children cannot open the zipper bag when they do not know how to open or not have enough strength to press the pressing portions **51**, therefore, the invention prevents children from mistakenly opening the zipper bag effectively and avoids loss of important documents and accidental ingestion of medicines.

Embodiment 2

The follows only describes the difference between the present embodiment and embodiment 1, and the unspecified structure is completely identical to the description of embodiment 1.

As shown in FIG. **8** and FIG. **9**, the pressing head **511'** is arranged at the tail end of the pressing block **5'**, the cavity **42'** includes a third inner wall **421'** and a fourth inner wall **422'** that forms an angle less than 90° with the third inner wall **421'**. The clamp **32'** spreads outwards relative to the connecting arm **31'**, the clamp **32'** includes a third side **321'** and a fourth side **322'** that forms an obtuse angle with the third side **321'**. The third side **321'** can contact with the pressing heads **511'**. The locking and detachment theories of the first pull block **1'** and the second pull block **2'** are completely consistent with those of embodiment 1. Thus repeated description is not given herein.

A tamper hole **8** is further formed on two sides of the first pull block **1'** respectively. The tamper hole **8** and the slot **6'** of the second pull block **2'** will be connected by common snap buttons or bead ties on the market. The snap buttons or bead ties should be cut off if the zipper bag is required to be opened, which can achieve the tamper-evident effect.

The embodiments above are only the preferred embodiments of the invention, and are not used to impose restrictions on the invention. Any amendment, equivalent replacement and improvement without departing from the spirit and principle of the invention are to be embraced within the scope of protection of the invention.

What is claimed is:

1. A safety lock for zipper bags, comprising a first pull block with a locking bar and a second pull block with a locking frame, wherein the locking bar is inserted into said locking frame to link the first pull block with the second pull block; said second pull block is further equipped with a release unit for detaching the locking bar from the locking frame, and a slot is formed between said release unit and top surface of the second pull block;

wherein said locking bar is arranged at one end of the first pull block and extends out of the first pull block; said locking bar includes a connecting arm and a clamp at the tail end of the connecting arm;

said locking frame includes an opening in which the clamp can be inserted in and a cavity communicated with said opening for containing the clamp; and

said release unit includes pressing portions on two sides of the locking frame and the pressing portions are provided with pressing heads.

2. The safety lock for zipper bags according to claim **1**, wherein said cavity comprises a first inner wall and a second inner wall that forms an angle of 90°~135° with the first inner

wall, said clamp includes a first side and a second side connected with the first side; said second side can cling to the second inner wall closely, and said first side can contact with the pressing heads of the pressing portions.

3. The safety lock for zipper bags according to claim **1**, wherein said cavity comprises a third inner wall and a fourth inner wall that forms an angle less than 90° with the third inner wall; said clamp spreads outwards relative to the connecting arm; said clamp includes a third side and a fourth side that forms an obtuse angle with the third side, and said third side can contact with the pressing heads of the pressing portions.

4. The safety lock for zipper bags according to claim **2**, wherein a safety hole is formed on the top of said first pull block and said second pull block respectively.

5. The safety lock for zipper bags according to claim **3**, wherein a safety hole is formed on the top of said first pull block and said second pull block respectively; a tamper hole is further formed on two sides of said first pull block respectively.

6. The safety lock for zipper bags according to claim **4**, wherein a zipper slot is provided on bottom of said first pull block and said second pull block respectively, and an opening block for opening the zipper bag seal is arranged at one end of the zipper slot.

7. The safety lock for zipper bags according to claim **5**, wherein a zipper slot is provided on bottom of said first pull block and said second pull block respectively, and an opening block for opening the zipper bag seal is arranged at one end of the zipper slot.

8. The safety lock for zipper bags according to claim **6**, wherein there are multiple ridges on the side hand-held parts of said first pull block and said second pull block respectively.

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